Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) A method of forming an interconnect structure in a semiconductor device or package comprising the steps of:

providing at least one metallic interconnect element comprising Cu, the at least one metallic interconnect element being selected from the group consisting of a bond pad, a wire, a lead frame, a ball grid array, a stud bump, TAB, C4 or solder bumps, and combinations of two or more of these;

oxidizing a surface of the at least one metallic interconnect element;

forming on at least one of said interconnect elements, after the oxidizing step, a bonding surface layer comprising Cu (N) in an amount effective to substantially inhibit oxidation of underlying metallic layers;

forming an electrically conductive bond in the location of said surface layer; and

prior to or substantially simultaneous with said bond forming step, decomposing said Cu (N) to substantially increase the conductivity of said layer.

2. (Original) The method of claim 1 wherein said interconnect structure comprises a semiconductor package having a die with at least one copper bond pad; a substrate for said die; and a surface layer comprising Cu (N).

3. (Original) The method of claim 2 wherein said bond forming step comprises ultrasonic or thermosonic bonding.

4. (Currently Amended) The method of claim 1 wherein ~~said providing step comprises providing at least one metallic interconnect element formed of copper and wherein said surface layer forming step comprises the step of~~the oxidizing step includes exposing ~~said surface layer of said copper~~the at least one metallic interconnect element to oxygen ~~to oxidize at least a portion of said surface layer~~.

5. (Currently Amended) The method of claim [[4]]1 ~~wherein said surface layer forming step~~ further ~~comprises~~ comprising the step of exposing said surface of the at least one metallic interconnect element~~layer~~ to heat prior to or at about the time of said ~~oxygen exposing~~oxidizing step.

6. (Currently Amended) The method of claim [[5]]1 wherein said bonding surface layer forming step ~~further~~ comprises the step of exposing ~~said surface layer~~the at least one interconnect element to nitrogen plasma.

7. (Currently Amended) The method of claim [[5]]1 wherein said bonding surface layer forming step ~~further~~ comprises the step of exposing the at least one interconnect element ~~said surface layer~~ to ammonia.

8. (Currently Amended) The method of claim ~~6 or 7~~1 ~~wherein said surface layer forming step~~ further ~~comprises~~ comprising exposing the at least one interconnect element~~said surface layer~~ to heat prior to or at about the time of said ~~nitrogen exposing~~bonding surface layer forming step.

9. (Currently Amended) The method of claim ~~6 or 7~~1 wherein said bonding surface layer forming ~~nitrogen exposing~~ step comprises exposing the at least one interconnect element~~said surface layer~~ to anhydrous ammonia.

10. – 23. (Cancelled)

24. (Currently Amended) A method of forming an interconnect structure in a semiconductor device comprising the steps of :

providing at least one conductive interconnect element comprising Cu;

oxidizing a surface of the at least one conductive interconnect element;

forming on said interconnect element a bonding surface layer comprising Cu (N) after the oxidizing step; and

forming an electrically conductive bond in the location of said bonding surface layer.

25. (Cancelled).

26. (Currently Amended) The method of claim [[25]]24 wherein said at least one conductive interconnect element is a wire ~~metal wire comprises~~ comprising copper ~~wire~~.

27. (Currently Amended) The method of claim ~~25 or~~ 26 wherein said bonding surface forming step comprises exposing a surface portion of said wire to a gas containing nitrogen ~~and copper~~.

28. - 29. (Cancelled).

30. (Currently Amended) The method of claim [[27]]26 wherein said bonding surface forming step comprises exposing at least a surface portion of said wire to nitrogen plasma.

31. (Currently Amended) The method of claim ~~25 or~~ 26 wherein said bonding surface forming step comprises ~~forming on said wire a surface layer comprising copper oxide and~~ converting at least a portion of said oxidized surface of the wire ~~copper oxide~~ to copper nitride.

32. (Currently Amended) The method of claim [[31]]24 wherein said ~~copper oxide forming~~oxidizing step comprises exposing a surface layer of [[Cu]]the at least one conductive interconnect element to oxygen plasma.

33. (Currently Amended) The method of claim [[31]]24 wherein said oxidizing ~~copper oxide forming~~ step comprises exposing a surface layer of the at least one conductive interconnect element[[Cu]] to hot oxygen gas.

34. (Currently Amended) The method of claim [[31]]24 wherein said oxidizing ~~copper oxide forming~~ step comprises exposing a surface layer of the at least one conductive interconnect element[[Cu]] to an oxidizing agent.

35. (Currently Amended) The method of claim [[31]]24 wherein said oxidizing ~~copper oxide forming~~ step comprises electrochemically oxidizing a surface layer of the at least one conductive interconnect element[[Cu]].

36. (Currently Amended) The method of claim 31 wherein said conversion comprises exposing said ~~copper oxide~~oxidized surface to nitrogen plasma.

37. (Currently Amended) The method of claim 31 wherein said conversion comprises exposing said oxidized surface ~~copper oxide~~ to gaseous ammonia.

38. (Cancelled)